MINUTEMAN®
Power Technologies
From Para Systems, Inc.

CPE ON-LINE SERIES

User's Manual

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IMPORTANT SAFETY INSTRUCTIONS

This manual contains important instructions that should be followed during the installation and the maintenance of the UPS.

SAVE THESE INSTRUCTIONS

An Important Notice

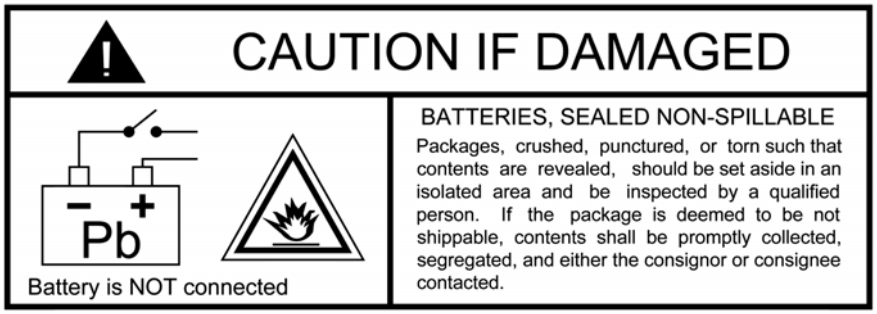
- To ensure safety in all applications where a UPS is hardwired to the Electrical Supply, ensure that a Qualified Service Personnel installs the system.
- Those UPS systems supplied with a power cord can be safely connected to the wall outlet by the user.
- The UPS has its own internal energy source (battery). Should the battery be switched on when no AC power is available, there could be voltage at the output terminals.
- Make sure that the AC Utility outlet is properly grounded.
- Do not open the unit there are no serviceable parts inside. This will void the warranty.
- Do not try to repair the unit yourself, see Obtaining Service.
- Please make sure that the input voltage of the UPS matches the supply voltage.
- Use a certified input power cord with the correct plugs and sockets for the appropriate voltage system.
- To eliminate any overheating of the UPS, keep all ventilation openings free from obstruction, and do not store anything on top of the UPS. Keep the UPS 8-inches away from the wall.
- Make sure the UPS is installed in the proper environment as specified. (0-40°C and 30-90% non-condensing humidity)
- Do not install the UPS in direct sunlight.
- Install the UPS indoors as it is not designed for outdoor use.
- Dusty, corrosive and salty environments will damage the UPS.
- Install the UPS away from; objects which give off excessive heat and areas, which are excessively wet.
- The battery will discharge naturally if the system is unused for prolonged periods of time.
- It is recommended that the batteries be recharged every 2-3 months while the UPS is not in service.
- This UPS supports electronic equipment in offices, telecommunications, process control, medical and security applications.
- This UPS has been designed and constructed to protect your equipment from the wide range of power anomalies experienced on Utility power lines today.

- This UPS is intended for use in a Controlled Environment.
- Servicing of Batteries should be performed by Qualified Service Personnel Only.
- When Replacing Batteries, Replace With the Same Number and Type.
- **CAUTION** – Do Not dispose of the battery in a fire. The battery may explode.
- **CAUTION** – Do not open or mutilate the battery. Released electrolyte is harmful to the skin and eyes. It may be toxic.
- **CAUTION** – Risk of Electric Shock – The battery circuit is not isolated from AC, hazardous Voltage may exist between battery terminals and ground. Test before touching.
- **CAUTION** – A Battery can present a Risk of Electrical Shock and High Short-Circuit Current. The following precaution should be observed when working with the batteries:
  A. Remove watches, rings, or other metal objects.
  B. Use tools with insulated handles.
  C. Wear rubber gloves and boots.
  D. Wear protective eye gear (goggles).
  E. Do not lay tools or metal parts on top of batteries.
  F. Disconnect charging source prior to connecting or disconnecting battery terminals.
- **CAUTION** – To reduce the risk of fire, connect only to a branch circuit with over current protection in accordance with the National Electric Code, ANSI/NFPA 70 (3KVA)
- **CAUTION** - Connect the UPS to a two pole, three wire grounding AC wall outlet. The receptacle must be connected to the appropriate branch protection (circuit breaker or fuse). Connection to any other type of receptacle may result in a shock hazard and violate local electrical codes. Do not use extension cords, adapter plugs, or surge strips.
- **CAUTION** - To reduce the risk of electrical shock with the installation of this UPS equipment and the connected equipment, the user must ensure that the combined sum of the AC leakage current does not exceed 3.5mA.
- **CAUTION** - To reduce the risk of electrical shock in conditions where the load equipment grounding cannot be verified, disconnect the UPS from the AC wall outlet before installing a computer interface cable. Reconnect the power cord only after all signaling connections are made.
- **WARNING** - Risk of Electrical Shock. Hazardous live parts inside these power supplies are energized from the battery even when the AC input is disconnected.
- **CAUTION** - To de-energize the outputs of the UPS:
  A. If the UPS is on press and release the On/Off Switch.
  B. Disconnect the UPS from the AC wall outlet.
  C. To de-energize the UPS completely, disconnect the battery.

- **NOTICE:** – This equipment has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules and the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference of the Canadian Department of Communications. These limits are designed to provide reasonable protection against such interference in a residential installation. This equipment generates and uses radio frequency and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, this equipment may cause interference to radio and television reception. If this equipment does cause interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
  A. Re-orient the receiving antenna.
  B. Relocate the computer with respect to the receiver.
  C. Move the computer away from the receiver.
  D. Plug the computer into a different outlet so that the computer and receiver are on different branch circuits.
  E. Shielded communications interface cables must be used with this product.
- **WARNING** – Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Receiving Inspection

After removing your MINUTEMAN UPS from its carton, it should be inspected for damage that may have occurred in shipping. Immediately notify the carrier and place of purchase if any damage is found. Warranty claims for damage caused by the carrier will not be honored. The packing materials that your UPS was shipped in are carefully designed to minimize any shipping damage. In the unlikely case that the UPS needs to be returned to MINUTEMAN, please use the original packing material. Since MINUTEMAN is not responsible for shipping damage incurred when the system is returned, the original packing material is inexpensive insurance. **PLEASE SAVE THE PACKING MATERIALS!**


CAUTION IF DAMAGED
BATTERIES, SEALED NON-SPILLABLE
Packages, crushed, punctured, or torn such that contents are revealed, should be set aside in an isolated area and be inspected by a qualified person. If the package is deemed to be not shippable, contents shall be promptly collected, segregated, and either the consignor or consignee contacted.
Pb
Battery is NOT connected

NOTE: These UPSs are shipped with the batteries disconnected. The batteries must be connected before putting these UPSs into service. Refer to Chapter 3 for Connecting the Batteries.

Para Systems Life Support Policy

As a general policy, Para Systems Inc. (Para Systems) does not recommend the use of any of its products in life support applications where failure or malfunction of the Para Systems product can be reasonably expected to cause failure of the life support device or to significantly affect its safety or effectiveness. Para Systems does not recommend the use of any of its products in direct patient care. Para Systems will not knowingly sell its products for use in such applications unless it receives in writing assurances satisfactory to Para Systems that (a) the risks of injury or damage have been minimized, (b) the customer assumes all such risks, and (c) the liability of Para Systems Inc. is adequately protected under the circumstances.

Examples of devices considered to be life support devices are neonatal oxygen analyzers, nerve stimulators (whether used for anesthesia, pain relief, or other purposes), auto transfusion devices, blood pumps, defibrillators, arrhythmia detectors and alarms, pacemakers, hemodialysis systems, peritoneal dialysis systems, neonatal ventilator incubators, ventilators for both adults and infants, anesthesia ventilators, and infusion pumps as well as any other devices designated as “critical” by the United States FDA.

Hospital grade wiring devices and leakage current may be ordered as options on many Para Systems UPS systems. Para Systems does not claim that units with this modification are certified or listed as Hospital Grade by Para Systems or any other organization. Therefore, these units do not meet the requirements for use in direct patient care.

Chapter One: Introduction

Thank you for purchasing a MINUTEMAN power protection product. It has been designed and manufactured to provide many years of trouble free service.

Please read this manual before installing your CPE On-Line Series UPS, models CPE 1000, CPE 1000i, CPE 2000, CPE 2000j, CPE 2000i, CPE 3000, CPE 3000i as it provides important information that should be followed during installation and maintenance of the UPS and batteries allowing you to correctly set up your system for the maximum safety and performance. Included is information on customer support and factory service if it is required. If you experience a problem with the UPS please refer to the Troubleshooting guide in this manual to correct the problem or collect enough information so that the MINUTEMAN Technical Support Department can rapidly assist you.

1.1. The General Characteristics

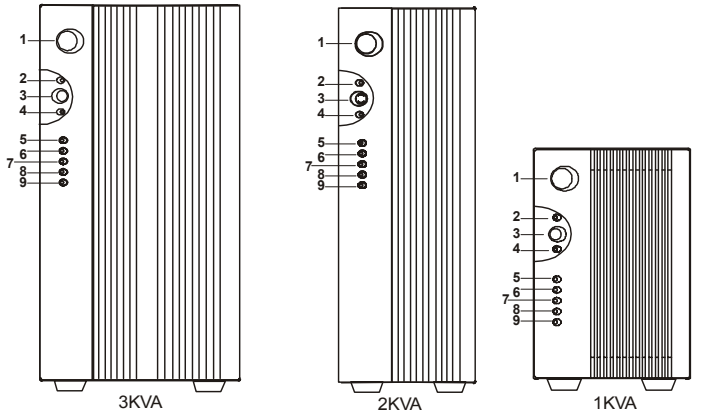
- True On-Line architecture continuously supplies your critical device with a stable, regulated, transient-free, pure sine wave AC Power.
- 50KHz PWM sine wave topology yields an excellent overall performance.
- The high crest factor of the inverter handles all high-inrush current loads without a need to upgrade the power rating.
- To protect the unit from overloading, it automatically switches to Bypass mode in case loading exceeds 120% of rating. It will automatically switch back to On-Line mode once overload condition is removed.
- Should the unit become overheated, the internal thermistor will detect the heat and switch to the Bypass mode and vice versa.
- Maintenance-free sealed-type battery minimizes service.

1.2. The Advanced Technical Characteristics

- Market leading light and compact design.
- Powerful CPU integrates all power stages, control and communication functions necessary for maximized UPS protection and functionality, including Power management status monitoring, configuration setting, operation scheduling, remote control and self-diagnosis.
- Advanced CPU communication design allows full function remote control from any computer environment via the standard RS232 interface.
- State-of-the-Art IGBT Technology and Industrial Grade quality ensures the highest efficiency and reliability under the worst operating condition.
- Industry leading inverter protection technology incorporates 2-stage output Current sensor, smart overload output current control, improved crest factor, and feedback fail proof circuit.
- Guarantees an exclusive protection against DC damage for inductive load, such as motor-based devices.
- Advanced Input PFC control guarantees the PF performance and maximum energy efficiency.
- Unique electronic over-current protection detects output short-circuit and faults, and halts the output before damages are done to the output fuse or the equipment.
- Expanded input voltage range minimizes battery usage and maximizes battery life.
- Automatic Frequency Sensor reduces the frequency shift.
- DC-start function allows the UPS to operate when there is no input power available.
- On-demand self-diagnosis function ensures UPS reliability.
- SNMP adapter slot allows power management and diagnostics via the Internet from any where in the world.
- User adjustable output voltages for your critical equipment.

Chapter Two: Introduction to the Front and Rear Panel

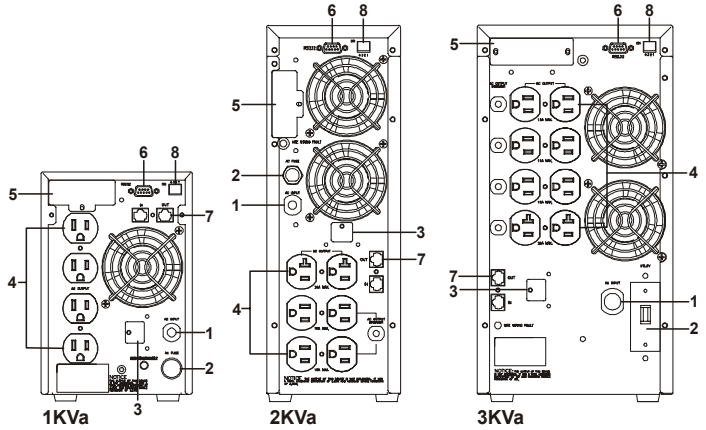
2.1. Front Panel Display Explanation



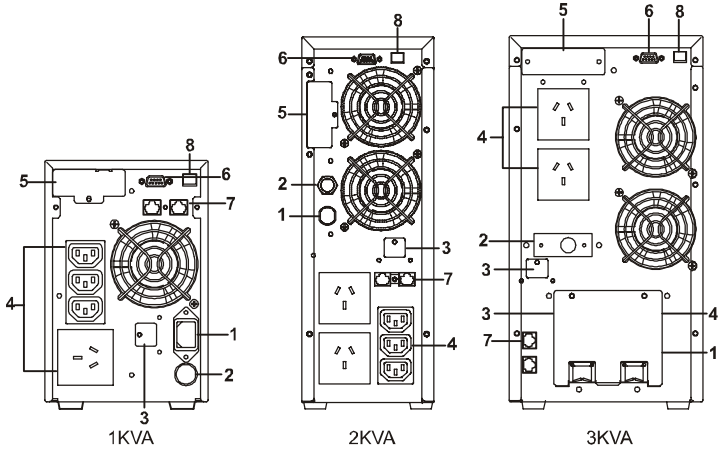
1.	**Main Switch**	This is to turn the UPS on/off.
2.	**Self-Test OK LED**	Green LED illuminates if the self-test is O.K.
3.	**Test/Silence**	a. Alarm Silence. b.1.For Standard Unit: Self-Test. Press the button over 10 sec. b.2.For Unit with Manual Bypass function(Special order required): Press the button over 5 seconds, the UPS will be switched to Bypass mode and vice versa. c. Displays the percentage of output load level in AC Mode, and the battery capacity in the Battery Mode.
4.	**Fault LED**	Red LED illuminates if the UPS detects an Internal Fault.
5.	**Bypass LED**	Amber LED illuminates when UPS is in Bypass mode.
6.	**Utility LED**	a. AC normal: Green LED illuminates. b. 100% for load levels & battery capacity.
7.	**Inverter LED**	a. Inverter On: Green LED illuminates. b. 75% for load levels & battery capacity.
8.	**Low Battery Warning LED**	a. Battery Low: Red LED illuminates. b. 50% for load levels & battery capacity.
9.	**Overload LED**	a. Overload condition: Red LED illuminates. b. 25% for load levels & battery capacity.

2.2. Rear Panel Explanation

a) 120VAC



b) 230VAC

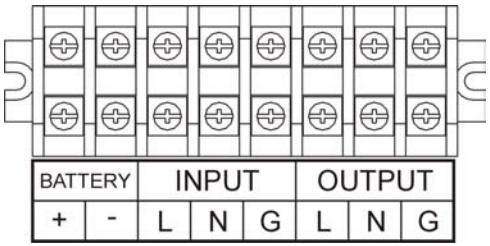


2.2.1 General Explanation

1.	**AC Inlet / Power Cord**	This is used to connect the input power cord to the UPS.			
2.	**AC Input Fuse/ Breaker**	This is used to disconnect the input line in case the UPS becomes overloaded or short-circuited.			
		Fuse/Breaker Rating for 120VAC/230VAC systems			
		1K	2K	3K	
		120VAC: 20A/250V 230VAC: 10A/250V	120VAC: 25A/250V 230VAC: 20A/250V	120VAC: 50A/250V 230VAC: 25A/250V	
3.	**External Battery Connector**	This is used to connect the External Battery Packs for longer Runtime. Only Qualified Service Personnel should install the External Battery Packs.			
4.	**Output Receptacles**	This is used to connect the protected equipment.			
		Receptacle type	1K	2K	3K
	120V Models	NEMA 5-15R	4pcs	4pcs	6pcs
		NEMA 5-15/20R	N/A	2pcs	2pcs
	230V Models	Receptacle type	1K	2K	3K
		IEC	3pcs	3pcs	N/A
		Schuko Sockets	1pce	2pcs	2pcs
		Terminal Block	N/A	N/A	Yes
5.	**Option Slot**	It is used for the Option Cards.			
6.	**Com Port**	This is an interface to send signals to and receive signals from the computer. Optional computer software may be required.			
7.	**RJ11/RJ45 Jack**	RJ11 Phone/Modem/Fax protection. RJ45 10-Base T Network protection.			
8.	**DIP Switches**	For Factory Calibration Only.			

2.2.2 Terminal Block Explanation

For 3K Tower Type 230V Only



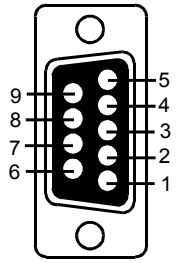
2.3 Communication Port and PP Contact Card Explanation

The communication port on the rear panel of the UPS is a true RS232 serial type. It may be connected to a computer and allows the computer to monitor the status of UPS, and control the operation of the UPS, via the Power Monitoring software. The Power Monitoring Software is for the Windows environment, such as Windows 3.1, Windows 95 & 98, Windows NT. For other applications, such as Novell NetWare, Unix, etc., please contact your local distributor for a proper solution.

2.3.1. The RS232 Interface Settings

Baud Rate	**: 2400 bps**
Data Length	**: 8 bits**
Stop Bit	**: 1 bit**
Parity	**: None**

2.3.2. The Pin Assignments of the RS232 Port



Pin 6: RS232 RXD
Pin 7: Ground
Pin 9: RS232 TXD

2.3.3. The Pin Assignments of PP Contact Card

Pin 1: UPS Shutdown, RS232 Input (+3.3 ~ +25VDC/5-seconds)
Pin 2: Line Fail Signal RS232 Output (Low to High)
Pin 3: Line Fail Signal Normally Open (40VDC/25mA)
Pin 4: Common
Pin 5: Low Battery Signal Normally Open (40VDC/25mA)
Pin 6: Line Fail Signal Normally Closed (40VDC/25mA)
Pin 7: Reserved
Pin 8: Reserved
Pin 9: Common

Chapter Three: Installation and Operation

The packing condition and the external outlook of the unit should be inspected carefully before installation. Retain the packing material for future use.

3.1. Unpacking

1. Take the UPS out of the PE foam.
2. Unwrap the UPS.
   a. Use the appropriate number of personnel when unpacking and lifting the unit.
   b. The plastic bag holding the UPS is very slippery so be careful in unpacking and handling the unit.
3. Standard Package includes:
   a. User's Manual
   b. Quick Install Instructions
   c. Input Power Cord
   d. IEC output cables (for the 230V models with IEC receptacles)
   e. RJ11 Phone Cable
   f. Power Monitoring Software Kit (Includes RS232 Cable)

3.2. Selecting Installation Position

The CPE On-Line Series is intended to be install in a temperature controlled environment that is free of conductive contaminants. Select a location, which will provide good air circulation for the UPS. Avoid locations near heating devices, water or excessive humidity, or where the UPS is exposed to direct sunlight. Route power cords so they cannot be walked on or damaged.

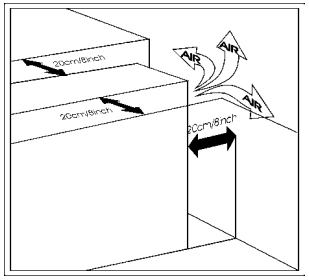
Operating Temperature (Max): 0 to 40 degrees C (+32 to +104 degrees F)
Operating Elevation: 0 to 3,000m (0 to +10,000 ft)
Operating and Storage Relative Humidity: 30 - 90%, non-condensing
Storage Temperature: -15 to +45 degrees C (+5 to +113 degrees F)
Storage Elevation: 0 to 15,000m (0 to +50,000 ft)

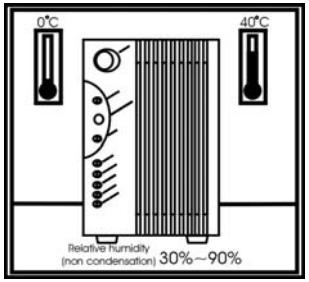
1. Keep at least 20cm (8-inches) clearance from the rear panel of the UPS to the wall.

2. Do not block the airflow to the ventilation openings of the unit.

3. These UPSs are intended for a Controlled Environment.

4. Do not place the UPS in an environment near dusty, corrosive or flammable materials.





3.3. Connecting the Batteries

Be sure to read all of the WARNINGS and the CAUTIONS before installing the UPS. Place the UPS in the final desired location and complete the rest of the installation procedure. These UPSs are shipped with the internal batteries disconnected. The batteries must be connected before putting these UPSs into service. Follow the procedure below to connect the batteries and install the UPS. **USE CAUTION:** The UPS is heavy. Use the appropriate number of personnel when installing the UPS.

The installation should be conducted or supervised by a Qualified Service Personnel. It is recommended that the UPS's batteries be charged for a minimum of 4-hours before use. The UPS may be used immediately, however, the “On-Battery” runtime may be less than normally expected. **NOTE:** If the UPS is going to be out of service or stored for a prolonged period of time, the batteries must be recharged for at least 24-hours every 2-3 months.

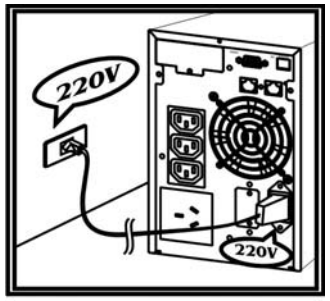
NOTE: See the Battery Replacement Procedure.

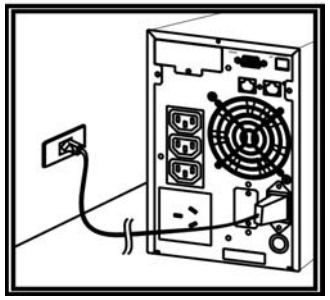
1. Remove the UPS from the shipping box and set on the floor or a bench top.
2. Remove the cover screws.
3. Remove the cover.
4. Connect the Battery Negative (Black) wire to the Battery Negative terminal.

NOTE: Some sparking might occur, this is normal.

5. Re-install the cover.
6. Re-install the cover screws.
7. The UPS is ready for normal operation.

3.4. Connecting the Equipment





1. Plug the equipment into the output receptacles on the rear panel of the UPS. Do not use extension cords, adapter plugs or surge strips on the output of the UPS. Ensure that the load does not exceed the maximum output rating of the UPS (refer to the information label on the UPS or the Electrical Specifications in this manual).

- **CAUTION** – DO NOT connect a laser printer to the output receptacles on the UPS, unless the UPS is rated 2000VA or greater. A laser printer draws significantly more power when printing than at idle and may overload the UPS.

2. Verify that the voltage and frequency ratings match that of the Utility power, and then connect the AC Input power cord into a two-pole, three -wire grounded receptacle only. Do not use extension cords, adapter plugs, or surge strips.
3. Press the Main switch on the front panel to turn on the UPS. The fan on the rear panel will start.
4. After 7~10 seconds, the start-up of UPS will be completed, then the "Utility" LED and Inverter" LED will illuminate simultaneously.
5. Turn on the connected equipment.
6. Press and hold the Test/Alarm Silencer Button for 10-seconds to perform a Self-Test to verify proper operation of the UPS.
7. The installation is complete the UPS is ready for normal operation.

3.5. Storage Instruction

For extended storage through moderate climate, the batteries should be charged for 24-hours every 3-months by plugging the UPS power cord into the wall outlet. Repeat this every 2-months under high temperature environment.

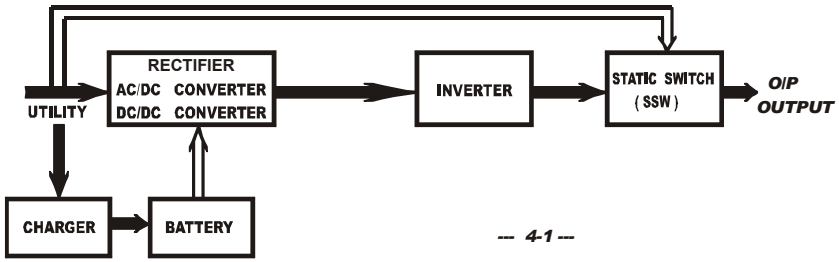
3.6. Option Slot

You may install the SNMP card into the Option slot on the rear panel of the UPS. The UPS may be connected to the network management system via the SNMP card. The SNMP card is an optional feature of the UPS. Qualified Service Personnel should perform the installation of the option cards. See the SNMP card User’s Manual for the installation.

Chapter Four: The Working Principle of the UPS

4.1. When Utility is Normal

The working principle of the UPS under normal Utility conditions is illustrated as follows:

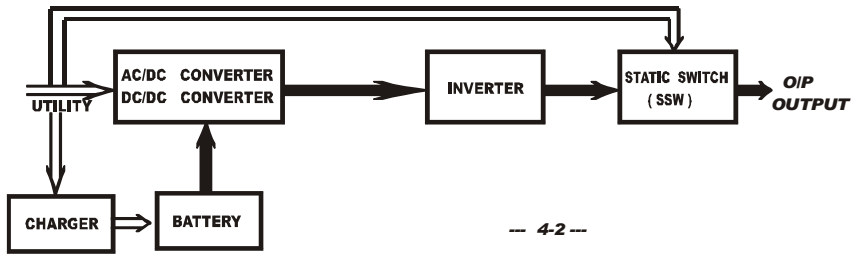


--- 4-1 ---

When Utility is normal, the AC source is rectified to DC, partially fed into the charger to charge the battery and partially fed into inverter. The inverter reverts the DC to AC to supply energy to the output load. The Utility LED and Inverter LED will illuminate.

4.2. When Utility is Abnormal

The working principle of the UPS under abnormal Utility conditions is illustrated as follows:



--- 4-2 ---

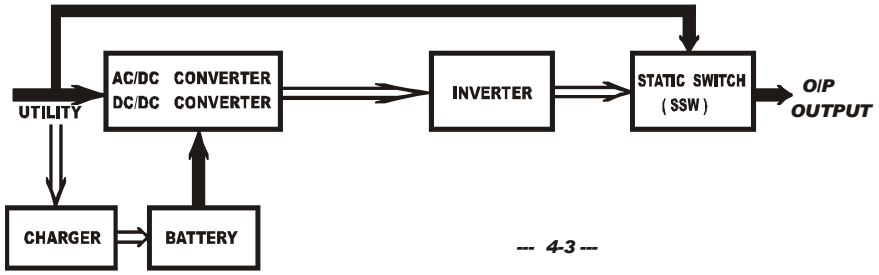
When Utility is abnormal, the UPS will direct the battery energy to the Inverter. The charger and AC/DC converter will turn off. The inverter will revert the DC to AC to supply power to the output load. The Inverter LED will illuminate.

When the Utility power returns to normal, the AC/DC converter and the charger will turn on. The DC/DC converter will turn off. It has the same working principle as figure 4.1.

During a blackout, the UPS will work as illustrated in figure 4.2. When the battery is low, the alarm will beep continuously until the battery is depleted and the UPS shuts down. The Low Battery Cut-Off protection turns the UPS off to prevent discharging batteries to an unsafe level. The Inverter LED and the Battery Low LED will be illuminated until the UPS shuts down. The UPS will Auto-Restart when the Utility power returns to normal. This is the same working principle as figure 4.1.

4.3. Overload Condition

The working principle of the UPS when overloaded is illustrated as follows:



--- 4-3 ---

Normally, an inrush current is generated when turning on the connected equipment.

If the UPS is 105~120% loaded, it will switch to the Bypass mode in 60-seconds.

If the UPS is 120-150% loaded, it will switch to the Bypass mode in 10-seconds.

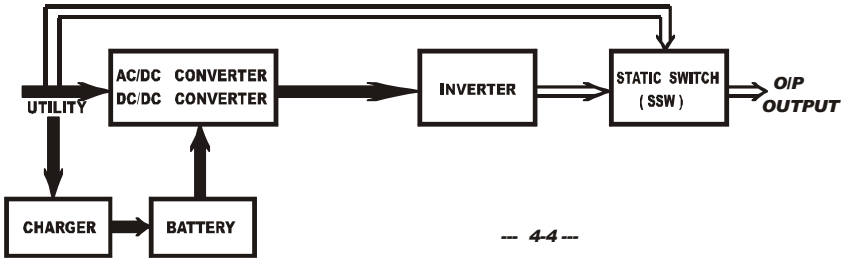
If the UPS is over 150% loaded, it will switch to the Bypass mode immediately.

The Utility LED, the Bypass LED and the Overload LED will be illuminated. If overload condition is removed the UPS will switch back to the On-Line mode automatically.

4.4. Inverter not Functioning

4.4.1. Output Short-Circuit operating in the On-Line Mode

If the output load becomes short-circuited while operating in the On-Line mode, the UPS will shutdown to prevent damaging the UPS and the remaining connected equipment. The Fault LED illuminates and the alarm sounds continuously. The UPS will not turn on automatically after the short-circuit condition has been removed. The UPS must be manually restarted. To restart the UPS after the short-circuit condition has been removed; press the Main Switch on the front panel to the "OFF" position first, then to the "ON" position.



4.4.2. Output Short-Circuit operating in the Bypass Mode

If the output load becomes short-circuited while operating in the Bypass mode, the AC fuse will open to prevent damaging the UPS and the connected equipment. Remove the short-circuited equipment and replace the AC fuse with same ratings.

4.5. Inverter Over-Temperature

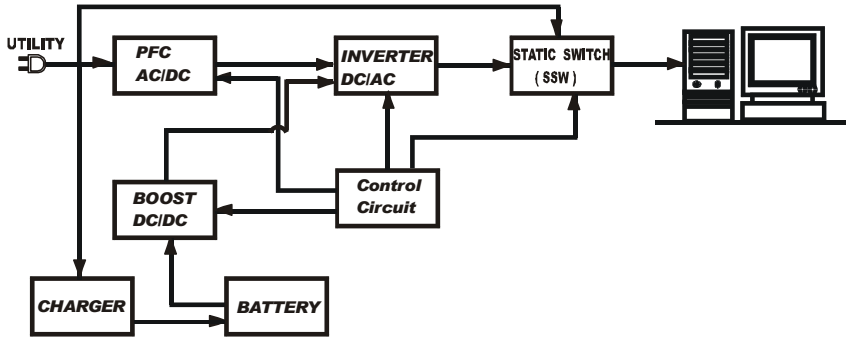
If the UPS experiences an over-temperature when the Utility is normal, the UPS will switch to the Bypass Mode. The UPS will switch back to the On-Line mode once the over-temperature condition has been eliminated. If the over-temperature condition happens when the Utility is abnormal, the alarm will beep continuously, the Fault LED will illuminate and the output of the UPS will turn off.

4.6. Inverter Over-Current and Output Voltage Out of Tolerance

If the UPS's inverter experiences an over-current or an out-of-tolerance output voltage, when Utility is normal; the UPS will switch to the Bypass mode and the Utility LED, Bypass LED and Fault LED will illuminate. If the over-current or the out-of-tolerance output voltage condition happens when the Utility is abnormal, the Fault LED will illuminate and the output of the UPS will turn off.

Chapter Five: Maintenance Guide

5.1. System Block



5.2 Troubleshooting

If the UPS malfunctions, check the list below to resolve the problem. Should the problem persist, call for service.

Situation	Check Items	Solution
Utility LED is not on and the UPS is on battery mode, when Utility is normal.	AC Input cord is loose or AC Input fuse is open.	1.Connect the Input power cord to the wall outlet. 2.Replace the AC input fuse. 3.If the problem persist call for service.
The UPS switches to the Battery mode then back to the On-Line mode, when the connected device is turned on. Or, the UPS switches back and forth between the Battery mode and the On-Line mode.	1. Check if any power strip is connected to the UPS. 2. Check the wall outlet.	1. Do not use power strips. 2. Replace the wall outlet.
The Overload LED is illuminated.		The UPS is overloaded. Remove some of the load.

Situation	Check Items	Solution
The Battery Low LED is illuminated.		The UPS is on battery power and the battery is almost exhausted. The UPS will shutdown shortly. When the Utility power returns recharge the battery.
The Fault LED is illuminated.		Disconnect the connected equipment. Turn the UPS off and then back on again. If the Fault LED is still on call for Service. If the Fault LED is not on, your equipment probably has a short-circuit.
System fails to backup when Utility fails.		The batteries may be bad or weak. Charge the batteries for 24-hours and then retest. If the UPS works properly after recharging, then the batteries were weak. If the UPS does not work properly, then the batteries are bad and need to be replaced.
The UPS is working properly but the connected equipment does not turn on.	Check to see if all the power cords are properly connected. Use a voltmeter to check the UPS's output receptacles for the proper voltage.	If the power cords are properly connected and the UPS has the proper output voltage, then your equipment has a problem. If there is no output voltage, then the UPS is being controlled by the software, disconnected the RS232 cable from the UPS and restart the UPS. If there is still no output, call for Service.
Strange noise and smell coming from the UPS.		Immediately turn off the UPS. Disconnect the input power cord from the wall outlet and call for Service.

5.3. Maintenance

Clean the dust from the ventilation openings and intakes on the rear panel.

1. Turn off the UPS and wipe the case with a damp cloth.
2. Periodically unplug the input power cord of the UPS from the wall outlet to test the batteries.
3. Save all open applications before performing the battery test.

5.4. Replacing the Batteries

(QUALIFIED SERVICE PERSONNEL ONLY)

The CPE On-Line Series UPS has an easy to replace batteries. Please read all of the **WARNINGS** and **CAUTIONS** before attempting to service the batteries.

- **WARNING** – This Uninterruptible Power Supply contains potentially hazardous voltages. Do not attempt to disassemble the UPS beyond the battery replacement procedure. This UPS contains no user serviceable parts. The repairs and the Battery replacement must be performed by **QUALIFIED SERVICE PERSONNEL ONLY.**

- **CAUTION** – Do not open or mutilate batteries. Released electrolyte is harmful to the skin and eyes and may be toxic.

- **CAUTION** – Do not dispose of batteries in a fire. The batteries may explode. The batteries in this UPS are recyclable. Dispose of the batteries properly. The batteries contain lead and pose a hazard to the environment and human health if not disposed of properly. Refer to local codes for proper disposal requirements or return the battery to MINUTEMAN.

- **CAUTION** – Although battery system voltages are 36VDC, 72VDC and 96VDC the battery system can still present a risk of electrical shock. These batteries produce sufficient current to burn wire or tools very rapidly, producing molten metal. Observe these precautions when replacing the batteries:

1. Remove watches, rings, or other metal objects.
2. Use hand tools with insulated handles.
3. Wear protective eye gear (goggles).
4. Wear rubber gloves and boots.
5. Do not lay tools or other metal parts on top of batteries.
6. Disconnect the charging source prior to connecting or disconnecting the battery terminals.
7. Determine if the battery is inadvertently grounded. If the battery is, remove the source of the grounding. Contact with any part of a grounded battery can result in an electrical shock. The likelihood of such shock will be reduced, if such grounds are removed during installation and maintenance.

- **CAUTION** – Replace batteries with the same number and type as originally installed in the UPS. These batteries have pressure-operated vents. These UPSs contain sealed non-spillable lead acid batteries.

Model Number	CPE 1000 CPE 1000i	CPE 2000 CPE 2000j CPE 2000i	CPE 3000 CPE 3000i
Battery QTY/Rating	3-12V7.2Ah	6-12V7.2Ah	8-12V7.2Ah
CSB Part Number	GP1272 F2	GP1272 F2	GP1272 F2
Panasonic Part Number	LC-R127R2CH1	LC-R127R2CH1	LC-R127R2CH1
Yuasa Part Number	NPW36-12	NPW36-12	NPW36-12

5.5. Battery Replacement Procedure

PLEASE READ THE CAUTIONS AND WARNINGS BEFORE ATTEMPTING TO REPLACE THE BATTERIES

- **CAUTION** - DO NOT short-circuit any of the battery wires to the chassis or to any component.

NOTE: Do not pinch the battery wires with the battery-retaining brackets.

NOTE: It is recommended that you draw a diagram of battery position and the battery connections before disconnecting any of the battery wires.

1. Turn off the equipment that is plugged into the output receptacles of the UPS.
2. Press the On/Off switch on the front panel to turn the UPS OFF.
3. Unplug the UPS's Input power cord from the wall outlet.
4. Unplug the equipment from the output receptacles of the UPS.
5. Unplug the computer interface cable from the rear panel of the UPS.
6. Remove the cover screws.
7. Remove the cover.
8. Disconnect the battery positive (red) wire.

NOTE: Use CAUTION, do not touch the battery positive (red) wire to the battery negative (black) wire or the chassis.

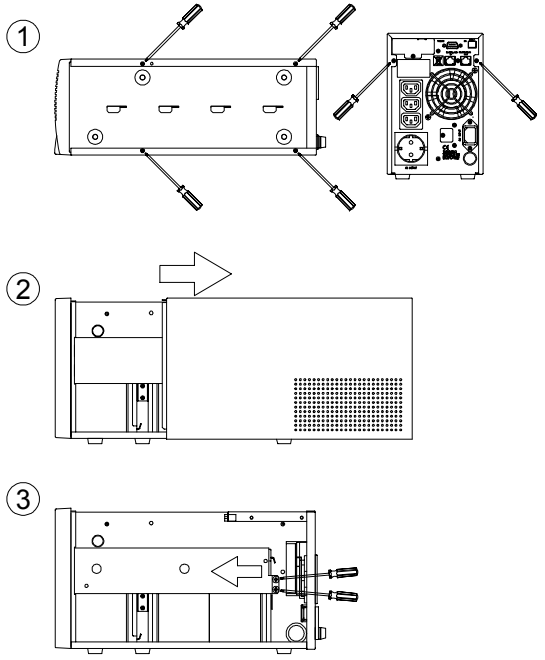
9. Put a piece of electrical tape over the end of the battery positive (red) wire.
10. Press the On/Off switch on the front panel this will discharge the board.
11. Disconnect the battery negative (black) wire.
12. Disconnect the battery jumper wires.
13. Remove the battery-retaining bracket retaining screws.
14. Remove the battery-retaining bracket (s).
15. Remove the old batteries.

16. Install the new batteries.
17. Re-install the battery-retaining bracket (s).
18. Re-install the battery-retaining bracket retaining screws.
19. Reconnect the battery jumper wires.
20. Reconnect the battery negative (black) wire to the battery negative terminal. Verify proper polarity.
21. Remove the piece of electrical tape from the end of the battery positive (red) wire.
22. Reconnect the battery positive (red) wire. Verify proper polarity.

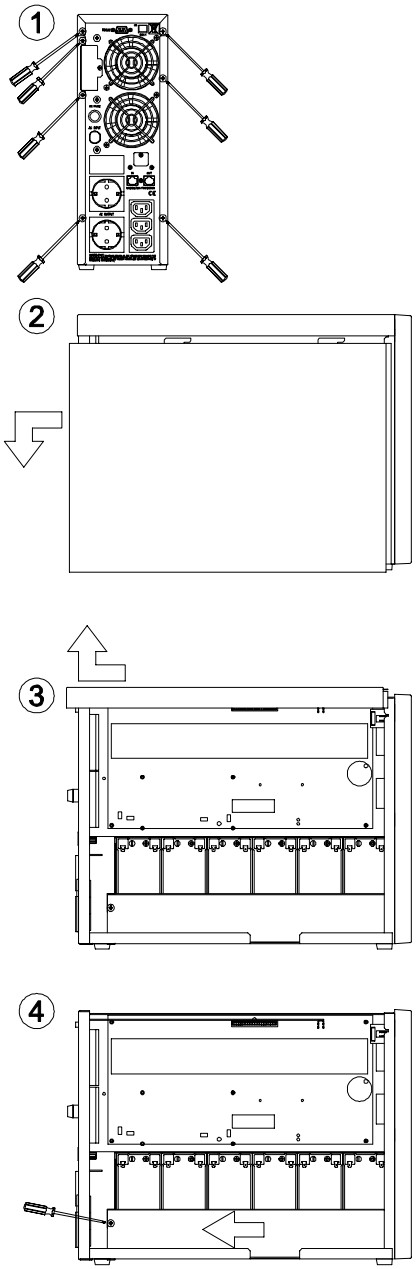
NOTE: Some sparking may occur, this is normal.

23. Re-install the cover.
24. Re-install the cover screws.
25. Reconnect the computer interface cable to the rear panel of the UPS.
26. Plug the equipment into the output receptacles of the UPS.
27. Plug the UPS's Input power cord into the wall outlet.
28. Press the On/Off switch on the front panel to turn the UPS ON.
29. Turn on the equipment.
30. The UPS is now ready for normal operation.
31. Dispose of the old batteries properly at an appropriate recycling facility or return them to the supplier in the packing material for the new batteries.

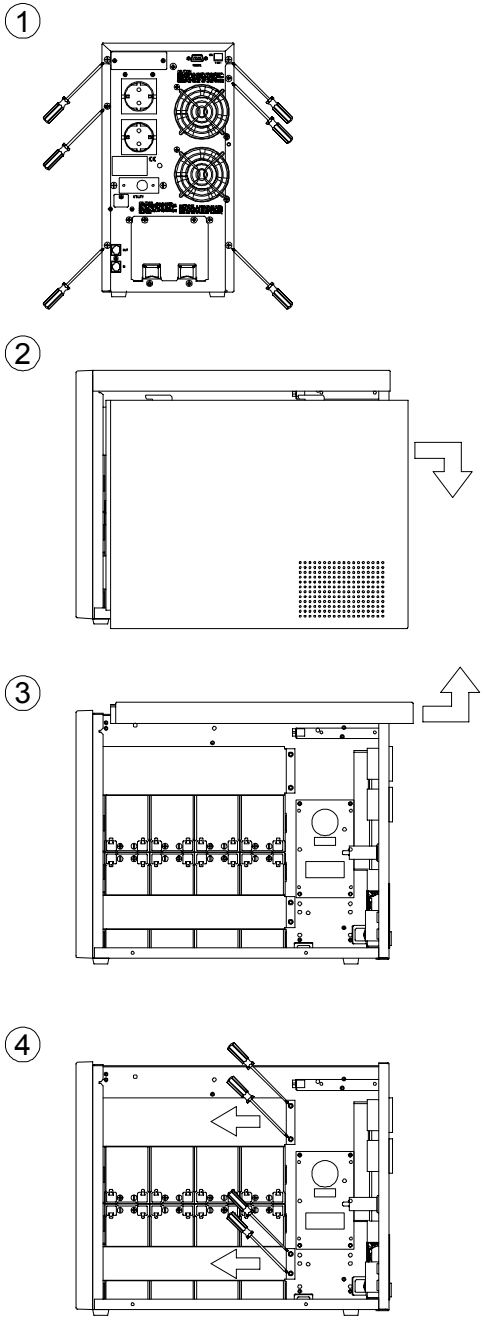
CPE 1000, CPE 1000i



CPE 2000, CPE 2000j, CPE 2000i



CPE 3000, CPE 3000i



Chapter Six: Power Monitoring Software Installation Guide

6.1. Hardware Installation

1. With the UPS off, connect one end of the RS232 cable to the UPS.
2. Connect the other end of the RS232 cable to the equipment that is monitoring the UPS. If there is only a DB25 connector on the monitoring equipment available, you may use a DB9 to DB25 adapter.
3. Turn the UPS and the monitoring equipment on.

6.2. Software Installation

6.2.1. RUPS II Installation

A. RUPS II for MS-DOS

1. Insert the software CD into your CD drive and execute **INSTALL.EXE** under MS-DOS.
   A:\>CD\DOS<Enter>
   A:\DOS>INSTALL<Enter>
2. Please select the MS-DOS menu from the installation menu box, and give the path of RUPS II software CD and the designated directory of it. (You may use the default value of RUPS II)
3. The installation program will copy all required files of the RUPS II into the designated path. It will also append a Load **RUPS.EXE** command in your **AUTOEXEC.BAT** file automatically. After the installation is done, the installation program will execute the **CONFIG.EXE** automatically. You may modify the configurations of RUPS II now.

B. RUPS II for Windows 3.1, Windows 95, 98, Windows NT

1. Execute "**A:\Windows\setup.exe**" under Windows system. This procedure can be achieved either by file manager or from the "RUN" command of Windows.
2. The RUPS II Setup group is labeled as RUPS2W, you may reset it to the desired group you wish.

C. RUPS II for Novell Netware

1. Login the File Server as a **SUPERVISOR** or a **USER** with access rights in sub-directory SYS: SYSTEM.
   F:\>LOGIN SUPERVISOR
2. Insert the software CD into the CD drive and execute **INSTALL.EXE**.
   F:\>A:
   A:\>INSTALL
3. After the installation is complete, please shutdown your NetWare Operating System and restart it. The system will load the PowerMan.NLM and execute it.
4. When the RUPS II for NetWare is loaded, the Filer Server will broadcast a successful loading message on the screen. You may switch to the RUPS II Menu by pressing **ALT_ESC** simultaneously.

6.2.2. UPSilon 2000 Installation

A. UPSilon 2000 for Windows 95, 98, NT
1. From the Start Button, choose "Run".
2. Type D:\Windows\Setup.exe.
3. Choose OK.

B. UPSilon 2000 for Novell Netware V3.1x
1. Login the File Server (with access rights in SYS: SYSTEM).
2. Execute D:\Netware\V3.1x\Install.exe.
3. Reboot System.

C. UPSilon 2000 for Novell Netware V4.x
1. Login the File Server (with access rights in SYS: SYSTEM).
2. Execute D:\Netware\V4.x\Install.exe.
3. Reboot System.

D. UPSilon 2000 for Novell Netware V5.x
1. Login the File Server (with access rights in SYS: SYSTEM).
2. Execute D:\Netware\V5.x\Install.exe.
3. Reboot System.

E. UPSilon 2000 for FreeBSD and Linux

1. Log in as a super-user.
2. Use the 'ftp' utility in MS-DOS to copy files into the system directory '/tmp'.
3. Follow the instructions below to make the filename conversion after the 'ftp'
   File transfer:
   #cd/tmp
   #mv linux.z linux.Z, or
   #mv LINUX.Z linux.Z
   #chmod 755 install
4. Execute the installation program: #./install.
5. Select a target system from the menu, and configure the UPSilon for Unix. The installation program will launch the UPSilon for Unix daemon process automatically.
   NOTE: Make sure no other process is using the same serial port.

Trademarks of MegaTec, RUPS, IBM, MS-DOS, Novell Netware, Windows, OS/2, NetLite, HP-UX, AIX, SUN, UNIX, and XENIX and Linux are registered trademarks of their respective companies.

Appendix

A.1. Specifications

MODEL		CPE 1000 CPE 1000i	CPE 2000 CPE 2000j CPE 2000i	CPE 3000 CPE 3000i
INPUT				
	Voltage	80~140VAC or 160~280VAC		
	Frequency	50 / 60Hz ±5%(Auto Sensing)		
	Phase	Single (1∅2W +G)		
	Input Power Factor	> 0.98 (Full Load)		
OUTPUT				
	Voltage	100/110/115/120VAC or 200/220/230/240VAC		
	Capacity	1000VA 700W	2000VA 1400W	3000VA 2100W
	Waveform	True Sine Wave		
	Voltage Regulation	±2%		
	Voltage T.H.D.	< 3% no load to full load (Linear Load)		
	Frequency Stability	±0.5Hz (Free Running)		
	Dynamic Response	+/-4% @ 100% load change in 60ms		
	Synchronization	1 Hz/Sec. Slew Rate: Inverter Free Running If Input Frequency Over ±5% Range		
	Crest Factor	3:1		
	Transfer Time	0 ms		
	Efficiency (On-Line Mode)	> 83%		
	Runtime (Half Load)	23-Minutes	22-Minutes	23-Minutes
	Runtime (Full Load)	8-Minutes	7-Minutes	8-Minutes
	DC Start	Yes		
BATTERY				
	Type	Sealed, Non-Spillable, Maintenance Free, Valve Regulated, Lead Acid		
	Quantity/Rating	3-12V7.2Ah	6-12V7.2Ah	8-12V7.2Ah
	System Voltage	36VDC	72VDC	96VDC
	Recharge Time	8 Hours to 90% from total discharge		
	Typical Battery Life	3-5 years, depending on number of discharge cycles and ambient temperature		
DISPLAY				
	LED	Utility, Battery Low, Inverter, Bypass, Self-Test, Load Level, Battery Level, Overload, Fault		

MODEL		CPE 1000 CPE 1000i	CPE 2000, CPE 2000j CPE 2000i	CPE 3000 CPE 3000i
PROTECTION				
	Overload	100%~120% delay 60-seconds before switching to Bypass Mode. 120%~150% delay 10-seconds before switching to Bypass Mode. >150% immediately switches to Bypass Mode.		
	Short-Circuit	a) Inverter Mode: UPS shuts down. b) Bypass Mode: AC Input fuse opens.		
	Overheat	a) Utility Normal: Switch to Bypass Mode. b) Utility Abnormal: Alarm sounds continuously, Fault LED illuminates then the output turns off.		
	Brownout, Blackout, Overvoltage	Switches to the Battery Mode.		
	Battery Low	Alarm continuous, until Low Battery Cut-Off		
	Noise Suppression	Comply with EN50091-2.		
	Spike Suppression	Comply with EN61000-4-5.		
ALARM				
	Audible and Visual	Line Failure, Battery Low, Bypass, Overload, Fault.		
PHYSICAL				
	Dimensions Net (WxHxD)	5.8x8.78x15.8 inch (147x223x401 mm)	5.1x14.4x18.9 inch (130x365x479 mm)	7.5x14.4x17.8 inch (190x365x453 mm)
	Weight Net	33.1 Lbs 15 Kgs	59.5 Lbs 27 Kgs	79.4 Lbs 36 Kgs
	Dimensions Shipping (WxHxD)	12.2x15.35x22.1 inch (310x390x560 mm)	11.4x20.1x24.8 inch (290x510x630 mm)	13.4x24.8x24.1 inch (340x630x610 mm)
	Weight Shipping	40 Lbs 18 Kgs	71 Lbs 32 Kgs	84 Lbs 38 Kgs
ENVIRONMENT				
	Operating Temp	0 to 40°C (+32 to +104°F)		
	Storage Temp	-15 to +45°C (+5 to +113°F)		
	Operating/Storage Humidity	30 to 90% Non-Condensing		
	Operating Elevation	0 to 3,000m (0 to +10,000 ft)		
	Storage Elevation	0 to 15,000m (0 to +50,000 ft)		
	Audible Noise	<45 dBA at 1 meter (3 ft)		
SAFETY CONFORMANCE				
	Safety Standard	120V models: EN50091-1, UL1778, CSA 22.2 (cUL) 230V models: EN50091-1		
	EMC Standard	120V & 230V models: EN50091-2, EN61000-3-3, EN61000-3-2, FCC Class A		
	Marks	120V models: CE, cUL 230V models: CE		

Specifications are subject to change without prior notice.

A.2. Obtaining Service

If the UPS requires Service:

1.Use the **TROUBLESHOOTING** section to eliminate obvious causes.
2.Verify there are no circuit breakers tripped. A tripped circuit breaker is the most common problem.
3.Call your dealer for assistance. If you cannot reach your dealer, or if they cannot resolve the problem call or fax MINUTEMAN Technical Support at the following numbers; Voice phone (972) 446-7363, FAX line (972) 446-9011 or visit our Web site at www.minutemanups.com the "Discussion Board". Please have the following information available BEFORE calling the Technical Support Department.

A. Your name and address.
B. Where and when the unit was purchased.
C. All of the model information about your UPS.
D. Any information on the failure, including LEDs that may be illuminated.
E. A description of the protected equipment, including model numbers if possible.
F. A technician will ask you for the above information and, if possible, help solve your problem over the phone. In the event that the unit requires factory service, the technician will issue you a Return Material Authorization Number (RMA #).
G. If the UPS is under warranty, the repairs will be done at no charge. If not, there will be a charge for repair.

4. Pack the UPS in its original packaging. If the original packaging is no longer available, ask the Technical Support Technician about obtaining a new set. It is important to pack the UPS properly in order to avoid damage in transit. Never use Styrofoam beads for a packing material.

A. Include a letter with your name, address, daytime phone number, RMA number, a copy of your original sales receipt, and a brief description of the problem.

5. Mark the RMA # on the outside of all packages. The factory cannot accept any package without the RMA # marked on the outside.
6. Return the UPS by insured, prepaid carrier to:

Para Systems Inc.
MINUTEMAN UPS
1455 LeMay Drive
Carrollton, TX 75007
ATTN: RMA # _____

A.3. Limited Product Warranty

Para Systems Inc. (Para Systems) warrants this equipment, when properly applied and operated within specified conditions, against faulty materials or workmanship for a period of three years from the date of purchase. For equipment sites within the United States and Canada, this warranty covers repair or replacement of defective equipment at the discretion of Para Systems. Repair will be from the nearest authorized service center. Replacement parts and warranty labor will be borne by Para Systems. For equipment located outside of the United States and Canada, Para Systems only covers faulty parts. Para Systems products repaired or replaced pursuant to this warranty shall be warranted for the un-expired portion of the warranty applying to the original product. This warranty applies only to the original purchaser who must have properly registered the product within 10 days of purchase.

The warranty shall be void if (a) the equipment is damaged by the customer, is improperly used, is subjected to an adverse operating environment, or is operated outside the limits of its electrical specifications; (b) the equipment is repaired or modified by anyone other than Para Systems or Para Systems approved personnel; or (c) has been used in a manner contrary to the product's User's Manual or other written instructions.

Any technical advice furnished before or after delivery in regard to use or application of Para Systems's equipment is furnished without charge and on the basis that it represents Para Systems's best judgment under the circumstances, but it is used at the recipient's sole risk.

EXCEPT AS PROVIDED HEREIN, PARA SYSTEMS MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Some states do not permit limitation of implied warranties; therefore, the aforesaid limitation(s) may not apply to the purchaser.

EXCEPT AS PROVIDED ABOVE, IN NO EVENT WILL PARA SYSTEMS BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF THIS PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGE. Specifically, Para Systems is not liable for any costs, such as lost profits or revenue, loss of equipment, loss of use of equipment, loss of software, loss of data, cost of substitutes, claims by third parties, or otherwise. The sole and exclusive remedy for breach of any warranty, expressed or implied, concerning Para Systems's products and the only obligation of Para Systems hereunder, shall be the repair or replacement of defective equipment, components, or parts; or, at Para Systems's option, refund of the purchase price or substitution with an equivalent replacement product. This warranty gives you specific legal rights and you may also have other rights, which vary from state to state.

Longer term and F.O.B. job site warranties are available at extra cost. Contact Para Systems (1-972-446-7363) for details.

A.4. Declaration of Conformity

Application of Council Directive(s):
73/23/EEC, UL

Standard(s) to which Conformity is declared:
120V models: EN50091-1, EN50091-2, UL 1778
230V models: EN50091-1, EN50091-2

Manufacturer's Name:
Para Systems, Inc. (MINUTEMAN UPS)

Manufacturer's Address:
1455 LeMay Drive, Carrollton, Texas 75007 (USA)

Type of Equipment:
Uninterruptible Power Supplies (UPS)

Model No:
CPE 1000 (Y), CPE 2000 (Y), CPE 3000 (Y)

Year of Manufacture:
Beginning December 1, 2005

I, hereby declare that the equipment specified above conforms to the above Directive(s).

Robert Calhoun (Name)	Manager Engineering (Position)
Date: December 1, 2005	Place: Carrollton, Texas, USA